

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

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Applicant's or agent's file reference CBC 1604 PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/03330	International filing date (day/month/year) 01.08.2003	Priority date (day/month/year) 22.08.2002
International Patent Classification (IPC) or both national classification and IPC C03C8/14		
Applicant JOHNSON MATTHEY PUBLIC LIMITED COMPANY		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 01.03.2004	Date of completion of this report 14.12.2004
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Van Bommel, L Telephone No. +31 70 340-2747 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/03330

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-8 as originally filed

Claims, Numbers

1-14 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB 03/03330

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-14
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Documents

Reference is made to the following documents:

D1: US-A-5 443 669 (TUENKER GERHARD) 22 August 1995

D2: WO 97/36836 A (TECHNEGLAS INC ;PEER JOSEPH (US)) 9 October 1997

2. Subject-matter

Claims 1 - 10 of the application define a ceramic ink, comprising a glass frit, a pigment, an organic vehicle and an oxidizing agent to enhance burn-out of the organics. The oxidizing agent is a bismuth nitrate.

Claims 11 - 14 define a coated substrate, a laminated glass and a method of coating or decorating a substrate using said ceramic ink.

3. Inventive step

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 - 14 does not involve an inventive step in the sense of Article 33(3) PCT for the following reasons:

The document **D1** (column 3, lines 48 - 54; claims) is regarded as being the closest prior art to the subject-matter of the claims, and discloses a ceramic ink comprising a glass frit, a pigment, an organic vehicle and an oxidizing agent to enhance burn-out of the organics. The ink is used for coating glass substrates for laminated glasses for vehicles.

The oxidizing agents that are suggested in D1 are Pb3O4, PbO2 and Mn-oxide.

The subject-matter of claims 1 therefore differs from this known ceramic ink in that a bismuth nitrate is used as an oxidizing agent, instead of e.g. Pb3O4.

The problem to be solved by the present invention may be regarded as bad fluid properties and poor quality coatings that are experienced with known oxidizing agents, such as Pb3O4.

The solution proposed in claim 1 of the present application cannot be considered as involving an inventive step (Article 33(3) PCT) for the following reasons.

D2 (see pages 11 and 17) describes a sealing glass paste comprising a glass frit (lead borosilicate, an organic vehicle and additives. An modifier is added to prevent PbO from being reduced during use.

As a modifier bismuth nitrate is preferred, whereas Pb3O4 is not preferred, because it has bad fluid properties.

D2 (see page 8, lines 4 - 11) defines a modifier to be a substance that prevents PbO in the glass frit to be chemically reduced during firing, and it should therefore be a substance that can be reduced to a lower oxidation state. Another passage of **D2** (page 7, lines 5 - 7) refers to additives that decrease the reduction of PbO in the sealing glass, being oxides, nitrates and other **oxidizing agents**.

Therefore the term "modifier" in **D2** can be read as "oxidizer".

Although the effect of the oxidizer as stated in **D2** (preventing PbO from being reduced) is different from the effect stated in **D1** (reduction or elimination of gas evolution during baking), the use of bismuth nitrate instead of Pb3O4 clearly solves a technical problem in the art, i.e. improving rheology of the sealing paste (see **D2**, page 17, lines 7 - 3 from under).

The skilled person would therefore regard it as a normal design option to include this feature in the ceramic ink described in document **D1** in order to solve the problem defined above

The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 11, 12 and 13 which therefore are also considered not inventive.

Dependent claims 2 - 10 and 14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step, since the features of claims 6 - 10 and 14 are known from **D1**, the features of claims 2 and 3 are known from **D2** and the features of claims 4 and 5 are commonly known.